



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/583,761

06/21/2006

Takanori Ohkawa

2006\_0937A

8752

513

7590

04/28/2009

WENDEROTH, LIND & PONACK, L.L.P.

1030 15th Street, N.W.,

Suite 400 East

Washington, DC 20005-1503

EXAMINER

JOHNSON, ERIC

ART UNIT

PAPER NUMBER

4126

MAIL DATE

DELIVERY MODE

04/28/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/583,761	<b>Applicant(s)</b> OHKAWA ET AL.	
	<b>Examiner</b> ERIC JOHNSON	<b>Art Unit</b> 4126	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 June 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kanazawa et al. (US Patent No. 6,879,071) and Ineson et al. (US Patent No. 5,334,897).

3. With respect to claim 1, Kanazawa et al. (US Patent No. 6,879,071), herein after referred to as “Kanazawa”, discloses an enclosed motor 1 (fig. 1, col. 2, lines 32-33 and col. 1, lines 12-14) characterized by a metallic motor casing 2 having a peripheral wall portion formed in a cylindrical shape and an end wall portion for closing one end opening of the peripheral wall portion (fig. 1, col. 2, lines 32-33 and fig. 3, col.2, lines 43-46); a rotor 5 (fig. 1, col. 3, lines 1-3) provided in motor casing 2 to drive an output shaft 4 (fig. 1, col. 3, lines 1-3) projecting from the motor casing 2 through a shaft hole in the end wall portion of motor casing 2 (figs. 1 & 3, col. 3, lines 35-40); a stator 3 provided at the periphery of rotor 5 in the motor casing 2 to rotationally drive rotor 2 (fig. 1, col. 3, lines 1-11); a connector body 7 provided to close the other end opening of the motor casing 2 (figs. 1, col. 2, lines 33-34); and connector body 7 integrally formed of plastic so as to close the other end opening of motor casing 2 (figs. 1 & 2, col. 3, lines 34-43). Kanazawa doesn't disclose a cover member provided to close the other end opening of

Art Unit: 4126

the motor casing, a connector body integrally formed of a resin so as to close the other end opening of a motor casing from the outside of a cover member.

4. Ineson et al. (US Patent No. 5,334,897), herein after referred to as “Ineson”, discloses a cover member 16 provided to close the other end opening of the motor casing (figs. 1 & 2, col. 2, lines 49-53, the motor casing being made up of front end cover 18 and stator shroud 14), a connector body 66 (figs. 1, 2 & 3, col. 4, lines 5-7) integrally formed of a resin (col. 4, lines 56-61) so as to close the other end opening of a motor casing (front end cover 18 and stator shroud 14) from the outside of cover member 16 (figs. 2 & 3, col. 4, lines 5-13).

5. It would have been obvious to one of ordinary skill in the art at the time of the invention to employ the cover member and connector body of Ineson in the invention of Kanazawa because having a separate cover member and connector body gives the motor manufacturer flexibility for the different connector needs of the manufacturer’s customers (as stated in Stobl et al., US Patent No. 5,006,742, col. 1, lines 9-16), since both Kanazawa and Ineson are for motors in the auto industry (Kanazawa, col. 1, lines 12-14; Ineson, col. 1, lines 12-19); and Ineson states connector body 66 is made from a plastic material and gives a resin as a useful material (col. 4, lines 56-61) making it obvious to use in Kanazawa, who uses plastic.

6. With respect to claim 5, Kanazawa in view of Ineson discloses an enclosed motor as discussed for claim 1 above. Kanazawa doesn’t disclose a connector body configured so that a surface directed toward the end wall portion side in the axial direction of a motor casing serves as a flange surface for being installed to a member to which the motor is installed by being brought into contact with a member to which the motor is installed.

Art Unit: 4126

7. Ineson discloses a connector body 66 configured so that a surface 74 (fig. 2, col. 4, lines 20-25) directed toward the end wall portion side (fig. 2, left side of figure where connector body 66 connects with cylindrical portion 19 of front end cover 18) in the axial direction of a motor casing (figs. 1 & 2, col. 2, lines 49-52, the motor casing being made up of front end cover 18 and stator shroud 14) serves as a flange surface (fig. 2, the flange surface is the part of connector body 66 that extends inward, towards the rotor 10) for being installed to a member 19f (fig. 2, col. 4, lines 5-13, part of front end cover 18 that connects with connector body 66) to which the motor is installed by being brought into contact with member 19f to which the motor is installed (fig. 2, the motor is installed in front end cover 18 as shown by rotor 10 and rotor bearing 22).

8. It would have been obvious to one of ordinary skill in the art at the time of the invention to employ the connector body flange of Ineson in the invention of Kanazawa because it would seal the motor from liquid contaminants (Ineson, col. 4, lines 5-13).

9. Claims 2-4, 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kanazawa et al. (US Patent No. 6,879,071), Ineson et al. (US Patent No. 5,334,897) and further in view of Bosman et al. (US Patent No. 5,254,892).

10. With respect to claim 2, Kanazawa in view of Ineson discloses an enclosed motor as discussed for claim 1 above. Kanazawa doesn't disclose claim 2.

11. Ineson discloses a cover member 16 formed integrally with stator 12 (fig. 2, col. 2, lines 49-52) and is formed so as to integrally hold a connector pin 40 (fig. 2, col. 3, lines 56-67), a portion on the distal end side of which is arranged in the connector body 66 when the connector body 66 is molded (figs. 2 & 4, col. 4, lines 5-15), the proximal end portion of the connector pin

Art Unit: 4126

40 serving as a terminal for connecting the end portion of a coil in the stator 12 (fig. 2, col. 3, lines 13-19).

12. It would have been obvious to one of ordinary skill in the art at the time of the invention to employ the cover member and connector body of Ineson in the invention of Kanazawa because having a separate cover member and connector body gives the motor manufacturer flexibility for the different connector needs of the manufacturer's customers (as stated in Stobl et al., US Patent No. 5,006,742, col. 1, lines 9-16), since both Kanazawa and Ineson are for motors in the auto industry (Kanazawa, col. 1, lines 12-14; Ineson, col. 1, lines 12-19); and Ineson states connector body 66 is made from a plastic material and gives a resin as an example of a useful material (col. 4, lines 56-61) making it obvious to use in Kanazawa, who uses plastic. Kanazawa in view of Ineson doesn't disclose using a resin for integrally forming a stator.

13. Bosman et al. (US Patent No. 5,254,892), herein after referred to as "Bosman", discloses a resin for integrally forming stator 28 (fig. 4, col. 4, lines 4-10).

14. It would have been obvious to one of ordinary skill in the art at the time of the invention to employ the stator of Bosman in the invention of Kanazawa in view of Ineson because forming the stator from resin would increase production time by forming one piece instead of connecting many pieces.

15. With respect to claim 3, Kanazawa and Ineson in view of Bosman disclose a motor according to claim 2. Kanazawa further discloses terminal 14 (fig. 1, col. 2, lines 57-58) is located on the outside in the axial direction of bobbin 11 (fig. 1, col. 2, lines 57-59, the axial direction of bobbin 11 is along the axis of the rotor 5) on which coil 13 in stator 3 is wound (fig. 1, col. 2, lines 56-57) and is provided so as to extend on the outer periphery side of bobbin 11

Art Unit: 4126

(fig. 1, where the inner periphery of bobbin 11 is where the stator core 10 is located) along the end surface (fig. 1, the outer periphery surface of bobbin 11) in the axial direction of bobbin 11 (fig. 1, col. 2, lines 57-59).

16. With respect to claim 4, Kanazawa and Ineson in view of Bosman disclose a motor according to claim 2. Kanazawa doesn't disclose a sub-cover member, which enables the exposure of the terminal, is provided in a portion corresponding to the terminal in the cover member.

17. Ineson discloses a sub-cover member 60 (figs. 1 & 2), which enables the exposure of the terminal (figs. 1 & 2, the terminal is part of connector pin 40 and the terminal is exposed at the inner side of cover member 16, the left side of connector pin 40 in fig. 2, connected to circuit board 38), is provided in a portion corresponding to the terminal in the cover member 16 (fig. 2, col. 3, lines 60-64).

18. It would have been obvious to one of ordinary skill in the art at the time of the invention to employ the sub-cover member of Ineson with the invention of Kanazawa because the sub-cover member is part of the cover member and having a separate cover member and connector body gives the motor manufacturer flexibility for the different connector needs of the manufacturer's customers (as stated in Stobl et al., US Patent No. 5,006,742, col. 1, lines 9-16), since both Kanazawa and Ineson are for motors in the auto industry (Kanazawa, col. 1, lines 12-14; Ineson, col. 1, lines 12-19); and Ineson states connector body 66 is made from a plastic material and gives a resin as a useful material (col. 4, lines 56-61) making it obvious to use in Kanazawa, who uses plastic.

Art Unit: 4126

19. With respect to claim 6, Kanazawa in view of Ineson discloses an enclosed motor as discussed for claim 1 above. Kanazawa further discloses a rotor 5 has a support shaft portion 4 (fig. 1, col. 3, lines 1-3) and a rotor magnet 28 fixed on the outer peripheral surface of support shaft portion 4 (fig. 1, col. 3, lines 1-4) and the outer peripheral surface of support shaft portion 4 is supported rotatably (fig. 1, col. 2, lines 39-43 and col. 3, lines 12-14). Kanazawa doesn't disclose a rotor with a support shaft portion formed of a material having a self-lubricating property.

20. Bosman discloses a rotor 30 (figs. 2, 3 & 6a-6d, col. 3, lines 62-65) that has a support shaft portion (figs. 6a-6b, made up of barrier member 56 and hub 62) formed of polybutylene terephthalate (figs. 2 & 6b, col. 4, lines 45-49). Bosman doesn't disclose a material having a self-lubricating property

21. It would have been obvious to one of ordinary skill in the art at the time of the invention to use polybutylene terephthalate as a material having a self-lubricating property and to employ the rotor of Bosman in the invention of Kanazawa in view of Ineson in order to reduce material costs by replacing the ball bearings with the bearing of Bosman and polybutylene terephthalate is known as having a self-lubricating property, as stated in Chol (US Patent No. 7,406,747) where polybutylene terephthalate is referred to as a lubricating resin (col. 5, lines 8-11).

22. Claims 7-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bosman et al. (US Patent No. 5,254,892) and Chol (US Patent No. 7,406,747).

23. With respect to claim 7, Bosman discloses a motor (figs. 2 & 3, col. 3, lines 60-61) having a rotor 30 (figs. 2 & 3, col. 3, lines 62-65) in which a rotor magnet 68 is fixed on the



Art Unit: 4126

outer peripheral surface of a support shaft portion (figs. 6a-6b, support shaft portion made up of barrier member 56 and hub 62, and figs. 3 & 6c, col. 4, lines 54-58) characterized in that the support shaft portion is formed of polybutylene terephthalate (fig. 6c, col. 4, lines 45-49) and the outer peripheral surface of the support shaft portion is supported rotatably (figs. 3 & 6d, col. 4, lines 63-66). Bosman doesn't disclose that polybutylene terephthalate has a self-lubricating property.

24. Chol discloses polybutylene terephthalate is a material having a self-lubricating property (col. 5, lines 8-11).

25. It would have been obvious to one of ordinary skill in the art at the time of the invention to employ the teachings of Chol in the invention of Bosman in order to reduce friction in the bearing of Bosman. Both the support shaft portion (end portion 52) and receiving part of the support shaft portion (first opening 48) of Bosman are made of polybutylene terephthalate (col. 4, lines 4-10; col. 4, lines 14-22; col. 4, lines 45-49).

26. With respect to claim 8, Bosman in view of Chol discloses a motor as discussed for claim 7 above. Bosman further discloses an end surface in the axial direction (left edge of end portion 52 in figs. 3 & 6b) of the support shaft portion (figs. 6a-6b, support shaft portion made up of barrier member 56 and hub 62, and figs. 3 & 6c, col. 4, lines 54-58) is supported slidably (figs. 2, 3 & 4, when the end portion 52 of the support shaft portion is put together with the stator (28) first opening 48, end portion 52 is slidably supported).

27. With respect to claim 9, Bosman in view of Chol discloses a motor as discussed for claim 7 above. Bosman further discloses a material of the support shaft portion (figs. 6a-6b, support

Art Unit: 4126

shaft portion made up of barrier member 56 and hub 62) is formed of polybutylene terephthalate (fig. 6c, col. 4, lines 45-49). Bosman doesn't disclose a resin having a self-lubricating property.

28. Chol discloses polybutylene terephthalate is a resin having a self-lubricating property (col. 5, lines 8-11).

29. It would have been obvious to one of ordinary skill in the art at the time of the invention to employ the teachings of Chol in the invention of Bosman in order to reduce friction in the bearing of Bosman.

30. With respect to claim 10, Bosman in view of Chol discloses a motor as discussed for claim 7 above. Bosman further discloses a rotor magnet 68 (fig. 6d) is fixed on the outer peripheral surface of said support shaft portion (figs. 6a-6b, support shaft portion made up of barrier member 56 and hub 62, and figs. 3 & 6c, col. 4, lines 54-58) by pressing-in, bonding, or post-molding of a resin magnet (col. 4, lines 54-68, magnet 68 is resin (mixture of barium ferrite and a thermoplastic) and is post-molded).

31. With respect to claim 11, Bosman in view of Chol discloses a motor as discussed for claim 7 above. Bosman further discloses a rotor magnet 68 (fig. 6d) is fixed (col. 4, lines 54-68, magnet 68 is post-molded) on the outer peripheral surface of the support shaft portion (figs. 6a-6b, support shaft portion made up of barrier member 56 and hub 62, and figs. 3 & 6c, col. 4, lines 54-58) by molding the support shaft portion in a state in which the rotor magnet 68 is arranged at the outer periphery (figs. 6b-6c, col. 4, lines 45-49, the hub 62 is injected molded to form the periphery of the support shaft portion, then the rotor magnet 68 is arranged on the outer periphery of the support shaft portion, col. 4, lines 54-59).

Art Unit: 4126

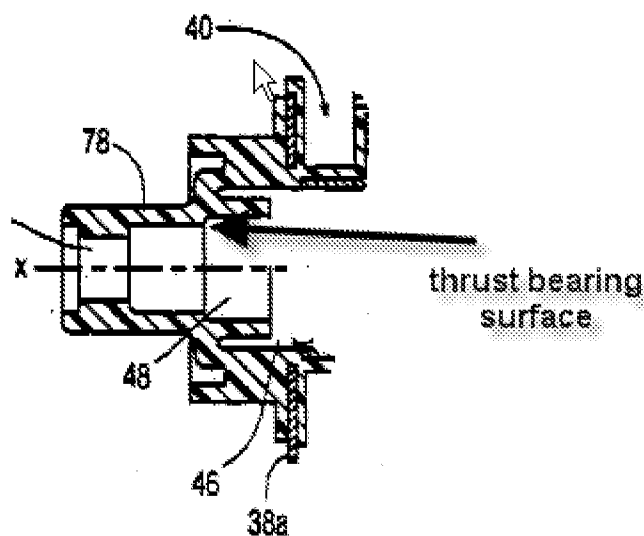
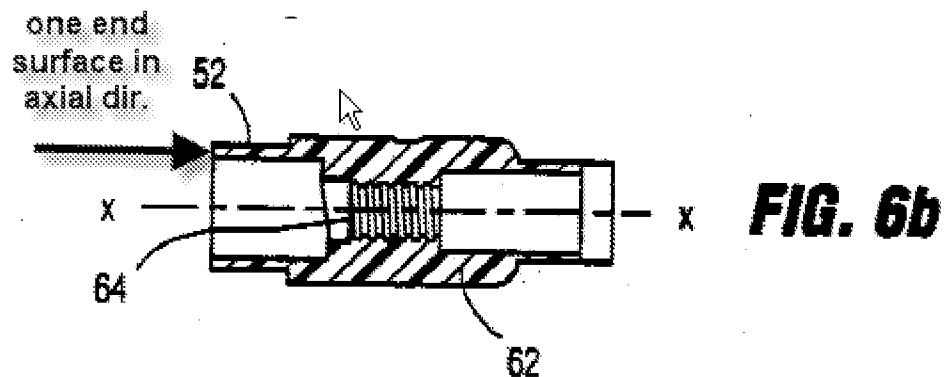
32. With respect to claim 12, Bosman in view of Chol discloses a motor as discussed for claim 7 above. Bosman further discloses a tubular member (fig. 3, col. 4, lines 14-16, bearing 32, which is a hollow cylindrical shape, bearing 32 having an annular shape and surrounding the end of rotor 30) is disposed on the rotary support portion (figs. 2 & 3, the side of rotor 30 with bearing 32) supporting the rotor 30, and an outer circumferential surface of the support shaft portion (figs. 6a-6b, support shaft portion made up of barrier member 56 and hub 62) is rotatably supported through the tubular member (figs. 2 & 3, col. 4, lines 14-16, bearing 32, which is a hollow cylindrical shape, bearing 32 having an annular shape and surrounding the end of rotor 30).

33. Claims 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bosman et al. (US Patent No. 5,254,892) and Chol (US Patent No. 7,406,747) and in further view of Torimoto et al. (US Patent No. 4,723,754).

34. With respect to claim 13, Bosman in view of Chol discloses a motor as discussed for claim 7 above. Bosman further discloses that at a position corresponding to one end surface in the axial direction (figs. 3 & 6b, left edge of end portion 52, see also fig. 6b below) of said support shaft portion (figs. 6a-6b, support shaft portion made up of barrier member 56 and hub 62), a thrust bearing surface (figs. 3 & 4, surface of stator 28 at the edge in the area of opening 48 that pushes against the rotor end portion 52 in the axial direction, see also fig. 6b below) which is in slidably contact with one end surface is provided (figs. 2, 3 & 4, when the end portion 52 of the support shaft portion is put together with the stator (28) first opening 48, end portion 52 is slidably supported). Bosman doesn't disclose a position corresponding to the other

Art Unit: 4126

end surface in the axial direction of the support shaft portion, urging means for urging from the other end surface side toward the thrust bearing surface side is provided.



35. Torimoto et al. (US Patent No. 4,723,754), herein after referred to as "Torimoto", discloses at a position corresponding to an other end surface in the axial direction (fig.1, the side of rotor 2 that has bearing 6 and the end surface in the axial direction is the edge of rotor 2

Art Unit: 4126

touching bearing 6) of the support shaft portion (fig. 1, made up of rotor 2 and rotary shaft 4, which are integrally formed, col. 2, lines 25-29), urging means 9 (fig.1, col. 2, lines 37-41) for urging from the other end surface side toward the thrust bearing surface side (fig.1, the thrust bearing surface being the surface of inner housing 7 touching bearing 5, in the axial direction) is provided.

36. It would have been obvious to one of ordinary skill in the art at the time of the invention to employ the urging means of Torimoto in the invention of Bosman in view of Chol in order to improve air flow accuracy by keeping rotor 30 (Bosman, fig. 3) aligned axially, making head 70b positioning consistent (Bosman, figs. 2 & 3, col. 4, lines 67-68 and col. 5, lines 1-6; fig. 1, col. 1, lines 28-35, which shows a typical application of a motor in the patent).

37. With respect to claim 14, Bosman and Chol in view of Torimoto disclose a motor as discussed for claim 13 above. Bosman further disclose a disc-shaped member (fig. 3, a flat disc shape is shown, also see fig. 3 below) is disposed between an axial end surface (left edge of end portion 52 in figs. 3 & 6b) of the support shaft portion (figs. 6a-6b, support shaft portion made up of barrier member 56 and hub 62) and the thrust bearing surface (figs. 3 & 4, surface of stator 28 at the edge in the area of opening 48 that pushes against the rotor end portion 52 in the axial direction).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tu Nguyen can be reached on (571)272-2424. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 4126

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ERIC JOHNSON/  
Examiner, Art Unit 4126

/Tu T. Nguyen/

Supervisory Patent Examiner, Art Unit 4126